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THE GREAT NEBULA IN *ANDROMEDA*.

(See the frontispiece.)

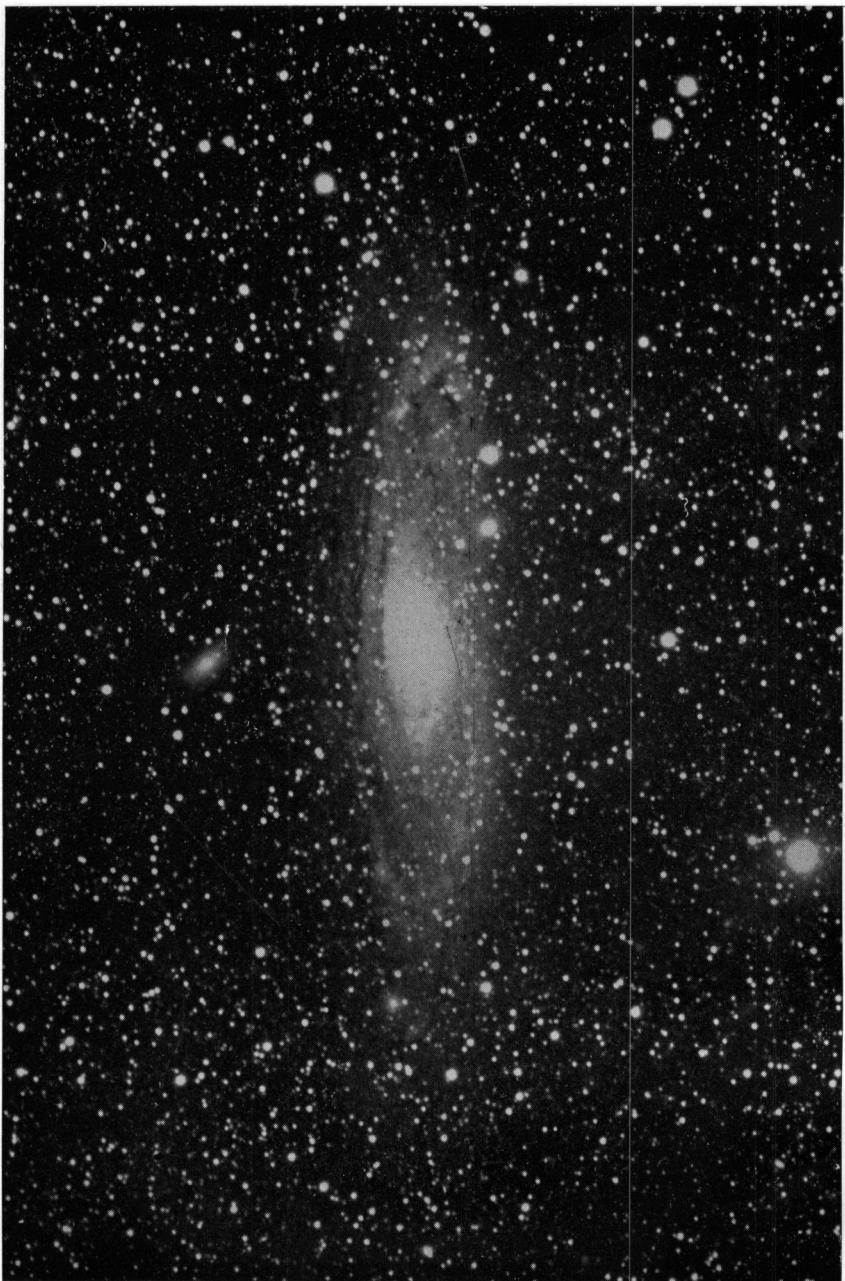
The frontispiece of the present volume is reproduced from a negative which I obtained with the CROCKER photographic telescope of the Lick Observatory on December 21, 1897, with an exposure of five hours.

The Great Nebula in *Andromeda* is the only one that was known before the invention of the telescope. AL-SUFI, in the tenth century, was familiar with the dim, hazy region near the most northern of the three stars composing the girdle of *Andromeda*. The telescope was first turned to this wonderful object by SIMON MARIUS, December 15, 1612. He described it as like a candle shining through horn. It received but little attention until the time of BOULLIAUD, whose attention was directed to it by the passage of the comet of 1664 across that part of the sky. HALLEY described it as being triangular in shape, with the apex of the triangle on the south preceding end, which corresponds to the right of the accompanying reproduction. MESSIER described it more accurately as two luminous pyramids having a common base, the distance from apex to apex being about two thirds of a degree, and the common base being about a quarter of a degree.

The next important advance in our knowledge of this nebula was made by Professor G. P. BOND, September 14, 1847. While examining it with the 15-inch refractor of the Harvard College Observatory, he saw on the north preceding side two dark rifts, nearly parallel to each other. These were observed with many smaller instruments after their discovery by BOND, but they were always drawn as straight lines.

It remained for photography to determine the true form of these rifts. On October 1, 1888, Mr. ISAAC ROBERTS, with his 20-inch reflector, obtained a photograph of this nebula which was a revelation to the astronomical world. It showed for the first time the elliptical form of the nebula, with the rifts extending almost continuously around it, as shown in the accompanying reproduction.

E. F. CODDINGTON.



THE GREAT NEBULA IN ANDROMEDA.

From a photograph by E. F. CODDINGTON.

Taken at Lick Observatory, Dec. 21, 1897, 7^h 10^m to 12^h 10^m P. S. T.